Claim Amendments

1. (Currently Amended) A distributed speech recognition (DSR) system comprising:

a client to send connection requests, receive displayable content, and transmit speech feature data to a server;

a gateway coupled between the client and the server to support data communication between the client and the server; and

a server to receive the speech feature data, perform speech recognition on the speech feature data, and transmit displayable content to the client.

2. (Currently Amended) A DSR system in accordance with claim 1, wherein said client further includes:

a client wrapper API to interface with a DSR client browser;

a DSR frame constructor coupled to the client wrapper API to construct DSR frames;

a DSR payload wrapper coupled to the DSR frame constructor to construct DSR payload packets from the DSR frames; and

a distributed speech recognition markup language (DSRML) client transceiver to receive displayable content and to send an initial connection request to the server.

2

3. (Original) A DSR system in accordance with claim 2, wherein said client further includes:

a client transmission/recognition adapter to adjust transmission control conditions of the DSR payload wrapper and to control flag bits needed for speech recognition according to transmission/recognition parameters; and

said DSR payload wrapper to add flag bits to the DSR payload packets.

4. (Original) A DSR system in accordance with claim 1, wherein said client further includes:

a client protocol stack having a TCP module supporting TCP protocol and an IP module supporting IP protocol.

5. (Previously Presented) A DSR system in accordance with claim 4, wherein said client protocol stack further includes a UDP module to support UDP protocol, the client further including:

a RTP sender to send data using RTP through UDP/IP protocol stacks, said RTP sender including a buffer to store data packets having been sent out but not acknowledged by the server; said RTP sender re-transmitting the stored packets that are not acknowledged by corresponding RTCP packets until all DSR RTP outgoing packets are acknowledged; and

said DSR payload wrapper passing the DSR payload packet to corresponding

protocol stacks according to TCP/UDP selection in a set of transmission/recognition

parameters.

6. (Original) A DSR system in accordance with claim 2, wherein said client

further includes:

a feature compressor coupled to the client wrapper API and the DSR frame

constructor to compress speech feature data.

7. (Original) A DSR system in accordance with claim 1, wherein said server

further includes:

a DSR payload de-wrapper to separate DSR speech feature data from

transmission/recognition parameters;

a DSR frame extractor coupled to the DSR payload de-wrapper to extract

DSR frames;

a server wrapper API coupled to the DSR frame extractor to interface with a

DSR server browser; and

a DSRML server transceiver to send displayable content and to receive an

initial connection request from the client.

8. (Original) A DSR system in accordance with claim 7, wherein said server further includes a server stack having a UDP module to support UDP protocol, the server further including:

an RTP receiver to receive DSR payload packets using RTP through UDP/IP protocol stacks and extracting DSR payload from the DSR payload packets; and

a server transmission/recognition adapter coupled to the DSR payload de-wrapper and the DSR frame extractor to control frame extraction according to transmission parameters and flag bits for speech recognition.

9. (Original) A DSR system in accordance with claim 8, wherein said server further includes:

a frame de-compressor coupled to the server wrapper API to de-compress speech feature data.

10. (Original) A DSR system in accordance with claim 1 wherein said gateway supports wireless data communication.

11. (Original) A DSR system in accordance with claim 1 wherein said gateway supports wired data communication.

12. (Original) The DSR system in accordance with claim 1 further including a Web server coupled to the server via a network.

13. (Original) The DSR system of claim 1 wherein the client further includes:

a front-end engine for reducing noise and to extract the speed feature data.

14. (Original) The DSR system of claim 1 wherein the displayable content is represented as a DSRML document.

15. (Currently Amended) A method comprising:

receiving displayable content associated with a markup language document;

receiving input speech data;

extracting speech features from the input speech data;

packaging the speech features into distributed speech recognition (DSR) frames in a DSR frame format;

collecting DSR frames to form a DSR payload; and

transmitting the DSR payload to a server for speech recognition processing.

16. (Original) The method of claim 15 further including:

increasing a TCP initial window;

adopting no slow-start restart;

applying TCP SACK; and

passing the DSR payload to a transport protocol stack composed of TCP and

IP.

17. (Currently Amended) A method comprising:

sending displayable content associated with a markup language document;

receiving a distributed speech recognition (DSR) payload packet;

de-wrapping DSR payload from the DSR payload packet and separating DSR

speech feature data from transmission/recognition parameters;

extracting DSR frames from the DSR payload;

extracting speech feature data from the DSR frames; and

sending the speech feature data to a speech recognition engine and for

recognition.

18. (Original) The method of claim 17 further including de-compressing the

speech feature data.

19. (Currently Amended) A machine-readable medium having stored thereon executable code which causes a machine to perform a method for transmitting distributed speech recognition (DSR) data, the method comprising:

receiving displayable content associated with a markup language document;

receiving input speech feature data;

extracting speech features from the input speech data;

packaging the speech features into DSR frames in a DSR frame format;

collecting DSR frames to form a DSR payload; and

transmitting the DSR payload to a server for speech recognition processing.

20. (Original) A machine-readable medium in accordance with claim 19, further comprising:

increasing a TCP initial window;

adopting no slow-start restart;

applying TCP SACK; and

passing the DSR payload to a transport protocol stack composed of TCP and IP.

21. (Currently Amended) A machine-readable medium having stored thereon

executable code which causes a machine to perform a method for receiving

distributed speech recognition (DSR) data, the method comprising:

sending displayable content associated with a markup language document;

receiving a DSR payload packet;

de-wrapping DSR payload from the DSR payload packet and separating DSR

speech feature data from transmission/recognition parameters;

extracting DSR frames from the DSR payload;

extracting speech feature data from the DSR frames; and

sending the speech feature data to a speech recognition engine for

recognition.

22. (Original) A machine-readable medium in accordance with claim 21,

further including decompressing the speech feature data.

23. (New) A client for a distributed speech recognition system, comprising:

an engine to extract speech features of a speech input;

a frame constructor to generate frames comprising extracted speech features;

a payload wrapper to construct payload packets from the frames comprising

extracted speech features; and

a transceiver to receive displayable content and to send an initial connection request to a server.

24. (New) A client in accordance with claim 23, further comprising an adapter to adjust transmission control conditions of the payload wrapper according to transmission/recognition parameters, wherein

the payload wrapper is to add flag bits to the payload packets based upon transmission/recognition parameters received from the adapter.

25. (New) A client in accordance with claim 23, further comprising

an RTP sender to send the payload packets using RTP, said RTP sender to store payload packets that have been sent but not acknowledged by the server; said RTP sender re-transmitting the stored payload packets that are not acknowledged by corresponding RTCP packets until all outgoing payload packets are acknowledged.

26. (New) A client in accordance with claim 25, further comprising

a TCP stack,

a UDP stack, and

an adapter to adjust transmission control conditions of the payload wrapper based upon transmission/recognition parameters, wherein

said payload wrapper is to select between sending the payload packets to the

server via the TCP stack and sending the payload packets to the server via RTP and

the UDP stack based upon transmission/recognition parameters of the adapter.

27. (New) A client in accordance with claim 23, further comprising:

a compressor to provide the frame constructor with compressed speech

features for the frames.

28. (New) A server for a distributed speech recognition system, comprising:

a payload de-wrapper to obtain transmission parameters and flag bits from

payload packets received from a client;

a frame extractor to extract frames comprising speech features from the

received payload packets;

a speech recognition engine to recognize speech from the speech features of

the extracted frames, and

a transceiver to receive an initial connection request from the client and to

send the client displayable content based upon the recognized speech.

29. (New) A server in accordance with claim 28, further comprising

a RTP receiver to receive payload packets; and

an adapter to control frame extraction of the frame extractor according to the

transmission parameters and flag bits obtained by the payload de-wrapper.

30. (New) A server in accordance with claim 28, wherein said server further

comprising:

a frame de-compressor to de-compress speech features of the extracted

frames.